New Frontiers Preproposal Conference

New Frontiers AO Highlights and Science Evaluation

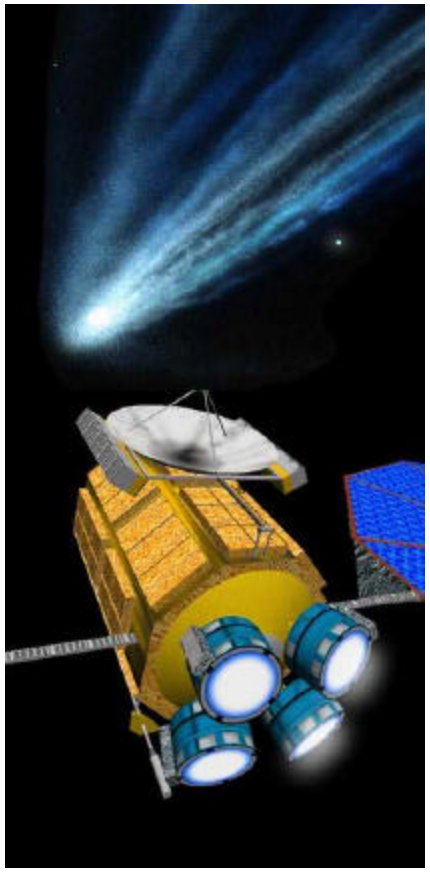
Tom Morgan

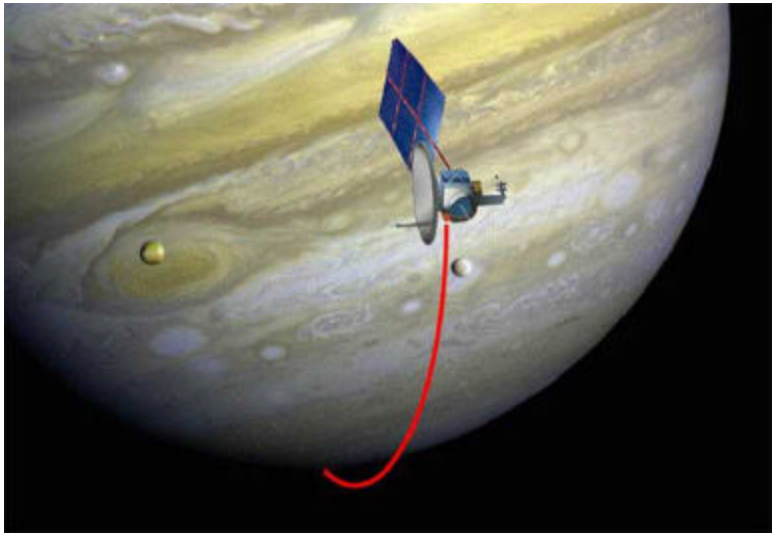
November 13, 2003

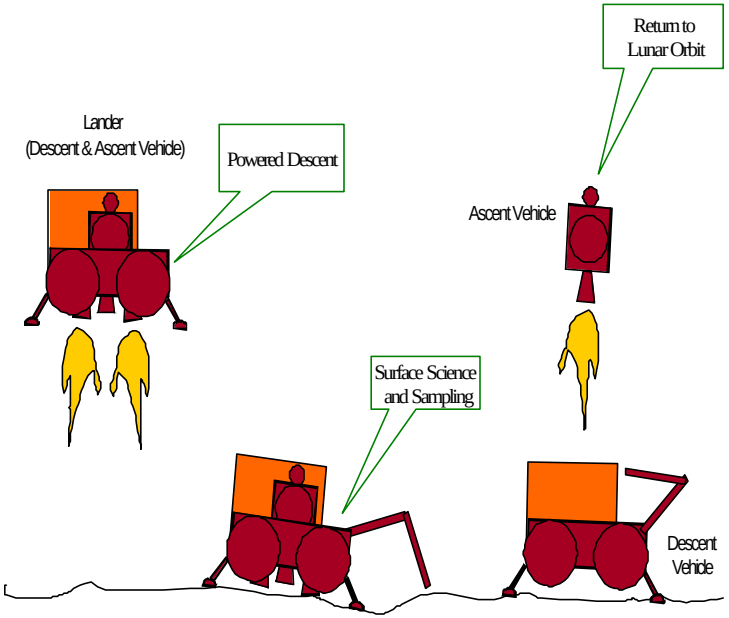
Overview of Proposal Evaluation and Selection

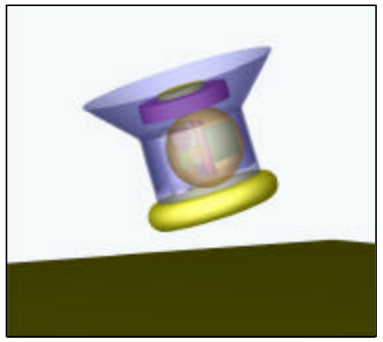
- **All Investigations must support the New Frontiers Program science themes per the AO.**
- Investigations proposed in response to this AO will be evaluated on the basis of their scientific and technical merits and feasibility including cost risk.
- Pending the submission of proposals with adequate merit, it is anticipated that up to 3 Mission Investigations will be selected for concept study. One or more MO investigations may also be selected for concept study or immediate implementation.
- Selected Mission Investigations will receive $1.2M (RY$) for a 7-month Phase A Concept Study. MO's will receive up to $250K (RY).
- As a result of the concept study phase, one New Frontiers Mission Investigation and possibly one or more MO investigations are expected to be confirmed for implementation leading to flight.

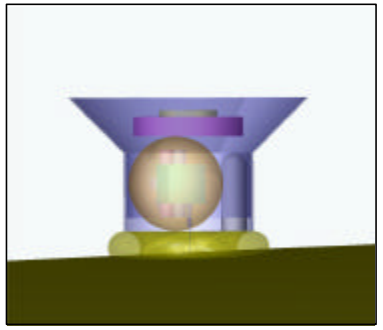
Remaining Decadal Survey(DS) Medium Missions(as envisioned by the DS)

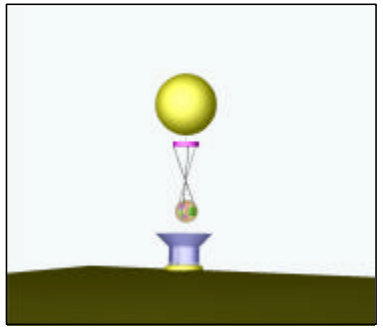












AO HIGHLIGHTS

- Investigations are PI-led; however, a PM must be identified.
- Mission Investigations are complete missions – Phase A through Phase E. Phase F is optional.
- Mission Investigations must be launched as a primary payload on an ELV. ELV must either be either NASA provided or contributed.
- Proposals must specify a baseline mission and performance floor.
- Investigations must include publication of data in the peer reviewed scientific literature. All science data must be placed in NASA's PDS.
- Investigations must include an E/PO program (at 1 to 2% of NASA OSS cost) and SDB participation. Investigations that depend on advanced technology must have sound development/qualification plans for the advanced technology and/or adequate backups defined.

AO HIGHLIGHTS
Continued

- Total Mission Cost must be provided (Total Mission Cost = OSS Cost plus any non-OSS cost or any contributions).
- Mission Investigation cost cap is $700M (FY 03); Missions of Opportunity (MO) cost cap is $35M (FY 03).
- Forward and back contamination protocols apply.
- Mission Investigation launch date NLT June 30, 2010, and launch must be within 47 months of start of Phase C. MO launch date NLT December 31, 2008. Missions of Opportunity must have NASA commitment before December 31, 2005 and can address any OSS Solar System Exploration science objectives except Mars.
- RPS usage is approved.

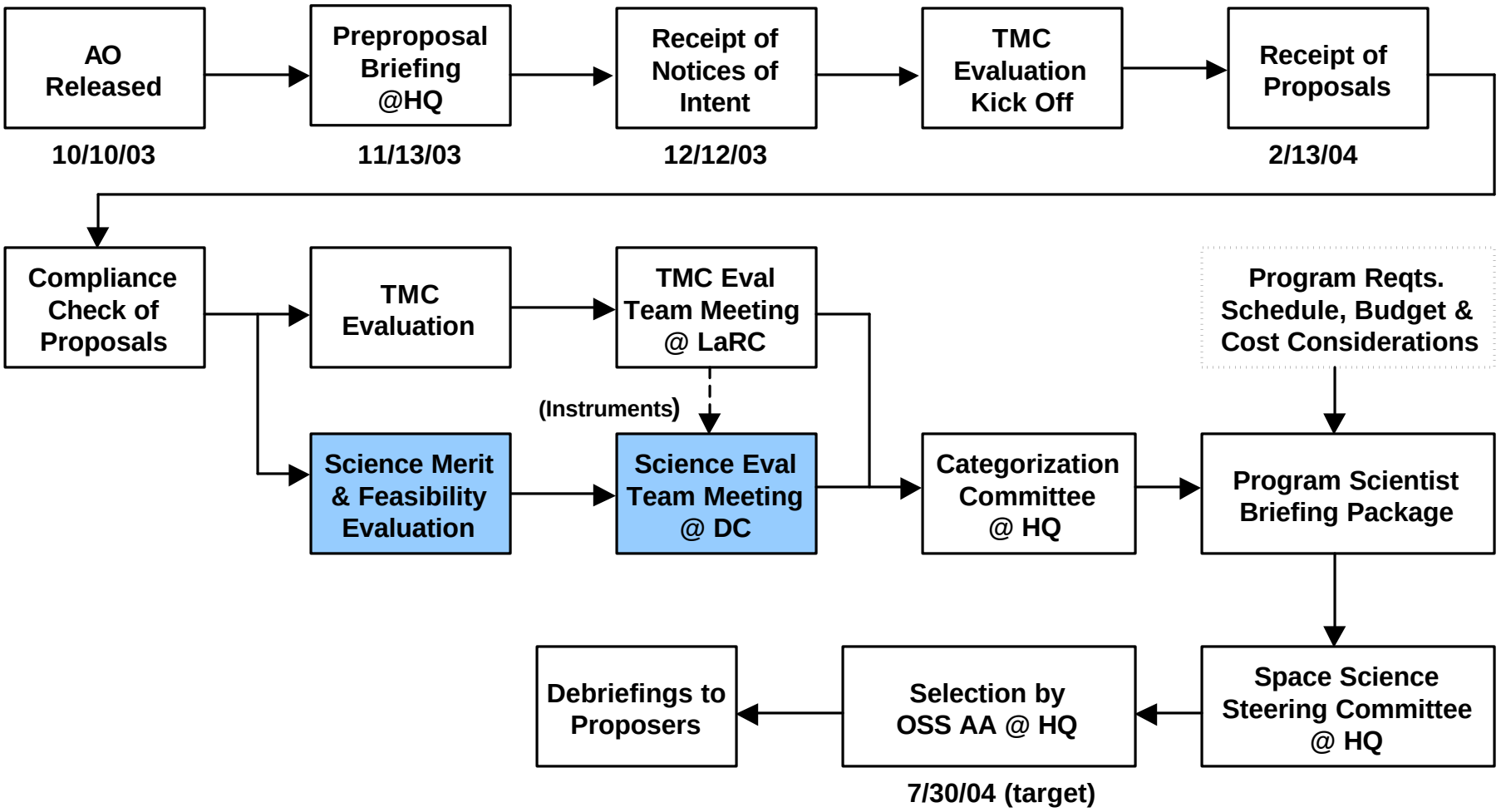
AO HIGHLIGHTS
(continued)

- Missions must adhere to NPG 7120.5B, NASA and Project Management Processes and Requirements. IV&V from the NASA IV&V facility in Fairmont, West Virginia must be obtained for all flight and ground software.
- Proposers must have a cost-effective mission assurance program that is consistent with ISO 9000:2000.
- A Risk Management Approach must be defined and must include risk mitigation plans for new technology and long-lead items required before Phase C. If international contributions are included, risk associated with international participation must be addressed.
- All NASA services using labor and any supporting NASA center infrastructure must be costed on a full cost accounting basis.

AO HIGHLIGHTS
(concluded)

- All NASA contributed costs must be separately funded and funding sources must be identified.
- Non-US launch services for payloads containing nuclear materials is prohibited, non-U.S sources of nuclear power sources are prohibited, and the sum of contributions of any kind may not exceed one-third of the estimated total cost in U.S. dollars for that hardware.
- Letters of Endorsement from each contributing organization must be submitted with the proposals (otherwise they will be judged non-compliant and may be returned).
- Proposal must maintain a reserve through the end of Phase B of at least 25% of all costs through the end of Phase D, except the cost of ELV and RPS. Less than 25% reserve will likely be judged as unacceptably high cost risk. Cost reserve must also be included for Phase E.

New Frontiers Proposal Evaluation Process



Evaluation Criteria

Proposal Evaluation Criteria per the New Frontiers AO:

	Missions and MO's w/hardware	MO's w/o hardware
Scientific Merit	40%	60%
Technical Merit	30%	40%
Feasibility of Proposed Approach	30%	0%

Evaluation Criteria
Scientific Merit of Proposed Investigation

- For Full Missions, proposed goals and objectives will be compared to the scientific goals and objectives described in section 2.1 of the AO.
- For MO's, the proposed goals and objectives will be compared with the broad strategic goals of the NASA OSS SSED, as defined in the NASA 2003 Strategic Plan.
- This Evaluation will also include:
  - How well the investigation promises fundamental progress in the scientific knowledge of the target.
  - How well the investigation may support other SSE missions.
  - Whether the investigation provides ancillary benefits to NASA's space program in general.
- The scientific value of the Performance Floor will also be assessed as part of the determination of the overall scientific merit of the investigation.
- This evaluation will result in a narrative text as well as an appropriate adjectival rating.

Evaluation Criteria
Technical Merit and Feasibility of Proposed Investigation

- Each Investigation will be evaluated for its technical merit, feasibility, resiliency, and the probability of success expressed in terms of major and minor strengths and weaknesses.
- Technical Merit and Feasibility will be evaluated by assessing the degree to which the investigation addresses the proposed scientific goals and objectives, and the degree to which any proposed instruments can provide the necessary data.
- Consideration of whether data gathered will be sufficient to complete the scientific investigation will be a major factor in the assessment as will the proposed plan for timely release of data to the public.
- For Mission Investigations, resiliency will be evaluated by assessing the approach for descoping the Baseline Mission to the Performance Floor.
- The probability of success will be evaluated by assessing the experience, expertise, and organizational structure of the science team and the mission design. The role of the PI will also be evaluated.
- For data-buy MO's, investigations need not specify a performance floor, nor provide for a PSP and/or DAP. In addition, data-buy MO's will be evaluated for evidence that data will be made available.